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NOVEMBER 4.

The President, Dr. LEIDY, in the chair.

Twenty-one persons present.

A paper entitled "On the Behavior of Petrolatum in the Digestive Tract," by N. A. Randolph, M. D., was presented for publication.

Impression of the Figures on a "Meday Stick."—Dr. D. G. BRINTON exhibited a full-sized impression of the figures on a "Meday Stick," obtained from the Pottawattomies, by the eminent antiquary, Dr. E. H. Davis.

These sticks are used as mnemonic aids in repeating the chants in the "Great Medicine Lodge," the principal religious rite of the Algonkins. The present stick is 19 inches long, $2\frac{3}{4}$ inches wide, and of hard wood. The figures engraved upon it are over 500 in number, chiefly representing plants. These figures are engraved with a knife, but the native name of such sticks points to a more primitive method. It is *massinahican*, literally "a piece of wood marked with fire." The characters inscribed are called *kekiwin*, which means *marks* or *signs*, and from which root are derived the words "to know," "to learn," and "to teach," in many Algonkin dialects.

The characters are of two kinds, notches, and drawings of objects. The notches are believed to indicate the musical time or rhythm of the chant, while the drawings suggest its words. The text of several such songs has been printed. They are usually to obtain success in the chase or restoration to health. The latter appears to be the nature of the present song, judging from the numerous plants depicted.

This Meday stick illustrates an instructive fact constantly lost sight of by antiquaries. The so-called picture-writing of the Algonkin Indians never presented pictures. There is no grouping, shading or pictorial arrangement of the figures. There is no attempt at esthetic effect. The single figures are not connected so as to evoke any artistic sentiment. The intention was wholly apart from this, and where such appears, it is not true Algonkin art.

NOVEMBER 11.

Mr. JOHN H. REDFIELD in the chair.

Thirty-two persons present.

The following papers were presented for publication:—

"Descriptions of New Species of North American Heterocera," by Herman Strecker.

"Some Notes on the Movements of the Andrœcium in Sun-flowers," by Dr. Asa Gray.

"Observations on Cinna, with Description of a New Species," by F. Lamson Scribner.

Fired Stones and Prehistoric Implements.—Dr. D. G. BRINTON exhibited specimens of quartzite, sandstone and jasper, which had been subjected to the action of fire, and spoke of their bearing on certain archæological questions.

The most ancient evidence of a knowledge of fire is not the charcoal and ashes of primeval hearths, but stones showing the action of the element. In France they have been found in considerable numbers in the tertiary deposits of Thenay, near Pontlevoy, belonging to the late miocene or early pliocene. In South America, the brothers José and Fiorentino Ameghino have discovered them in a low stratum of the Pampas formation, believed to be referable to the interglacial epoch of the pleistocene.

The effects of fire on stones are quite distinct from those of other agents. They are shown in discoloration, scaling, and peculiar forms of fracture. Quartz becomes cloudy and opaque; jasper loses its fresh yellow hue to turn a dull red, while sandstone forfeits the fresh lustre of its fracture, and shows brown and blackish.

Stones broken by fire present one of two characteristic appearances; the one is called by French archæologists *Craquelage*, the other *Étonnement*. Quartzite illustrates the former, jasper the latter. *Craquelage* presents a plane usually at about right-angles to the plane of cleavage; its surface rough, friable, and full of little pits and rounded eminences—like a face pitted with small-pox, to borrow the simile of Mortillet. *Étonnement* is a splitting by flakes in the lines of percussion cleavage, but distinguishable from the latter by the absence of the bulb of percussion, and the splintering which often attends a blow. The flake and its matrix are perfectly clean at all points of their edges.

Scaling is seen on the surface of sandstones subjected to fire. Small scales are loosened and are detached by exposure, revealing the discolored layers beneath.

It is claimed by some of the French archæologists that the very oldest implements used by man were stones thus fractured by fire. This plan of bringing them to an edge, they say, preceded that of percussion. This does not appear to be the case in America. The implements of the Trenton gravels are of sandstone chiefly; those of the interglacial of the upper Mississippi are of quartzite, neither of which fractures by *Étonnement*. Whether the later residents of our soil ever used fire to aid their

art-production in flint and jasper is uncertain. The speaker had seen no specimens that conclusively showed that they did.

Cutaneous Absorption of Nicotine.—Dr. N. A. RANDOLPH described the results of a series of experiments performed by Mr. Samuel G. Dixon and himself, relative to the absorption of nicotine by the uninjured healthy skin of the living rabbit. In these experiments only rabbits of ascertained good health were used. The fur of the abdomen was carefully clipped (not shaved); sufficient time, usually seven days, being allowed to intervene between this operation and the application of the drug to the skin; thus permitting any slight scratch made at this time to fully heal. The absence of cutaneous lesion was further confirmed by close examination under a strong hand-magnifier. The drug was then applied to the skin, no friction being used. In order to preclude the possibility of its vaporization and subsequent absorption by the lung surface, the nicotine was placed upon an adhesive plaster, the backing of which was made of sheet rubber. The plaster, with the drug in its centre, was then applied in the open air, on a windy day. Different doses were applied; thus, in one case, one drop of nicotine applied to the skin, caused death in five hours and eleven minutes. In each of three cases a similar application of ten drops was fatal in respectively one hundred and nine minutes, twenty-eight minutes, and thirty-six minutes. In the fifth case, a similar application of fifteen drops of nicotine caused death in twenty-eight minutes.

Of the ante-mortem symptoms, contraction of the pupil was *constant*, and often appeared very quickly. Other prominent symptoms were great trembling, with subsequent loss of muscular power in the extremities. In one case, actual convulsions were noted, and in others, coldness of the skin and increased lachrymal and nasal secretion. Immediately upon the death of two of the animals (after the ten- and fifteen-drop doses respectively), blood was removed, defibrinated, and tested with mercuric chloride for the presence of nicotine in the manner detailed by Wormley (*"Micro-Chemistry of Poisons"*). In each of these two instances, characteristic groups of crystals were found upon microscopic examination of the extract from the blood.

The following was ordered to be printed:—